# C4L Science Item Count by Tested Indicator

## Grade 8

| Inquiry, The Nature of Science, and Technology | Number of items in Item Bank | |
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| *SC 8.1.1.a Formulate testable questions that lead to predictions and scientific investigations* | 3 | |
| *SC 8.1.1.b Design and conduct logical and sequential investigations including repeated trials* | 4 | |
| *SC 8.1.1.c Determine controls and use dependent (responding) and independent (manipulated) variables* | 5 | |
| *SC 8.1.1.d Select and use equipment appropriate to the investigation, demonstrate correct techniques* | 5 | |
| *SC 8.1.1.e Make qualitative and quantitative observations* | 5 | |
| *SC 8.1.1.f Record and represent data appropriately and review for quality, accuracy, and relevancy* | 6 | |
| *SC 8.1.1.g Evaluate predictions, draw logical inferences based on observed patterns/relationships, and account for non-relevant information* | 3 | |
| *SC 8.1.1.h Share information, procedures, results, and conclusions with appropriate audiences* | 2 | |
| *SC 8.1.1.i Analyze and provide appropriate critique of scientific investigations* | 2 | |
| *SC 8.1.1.j Use appropriate mathematics in all aspects of scientific inquiry* | 3 | |
| **PHYSICAL SCIENCE** | **Number of items in Item Bank** | |
| *SC 8.2.1.a Compare and contrast elements, compounds, and mixtures* | 9 | |
| *SC 8.2.1.b Describe physical and chemical properties of matter* | 8 | |
| *SC 8.2.1.c Recognize most substances can exist as a solid, liquid, or gas depending on temperature* | 6 | |
| *SC 8.2.1.d Compare and contrast solids, liquids, and gasses based on properties of these states of matter* | 11 | |
| *SC 8.2.1.e Distinguish between physical and chemical changes (phase changes, dissolving, burning, rusting)* | 10 | |
| *SC 8.2.1.f Recognize conservation of matter in physical and chemical changes* | 4 | |
| *SC 8.2.1.g Classify substances into similar groups based on physical properties* | 6 | |

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| *SC 8.2.2.a Describe motion of an object by its position and velocity* | 6 | |
| *SC 8.2.2.b Recognize an object that is not being subjected to a force will continue to move at a constant speed in a straight line or stay at rest (Newton's 1st law)* | 7 | |
| *SC 8.2.2.c Compare the motion of objects related to the effects of balanced and unbalanced forces* | 7 | |
| *SC 8.2.2.d Recognize that everything on or around Earth is pulled towards Earth's center by gravitational force* | 4 | |
| *SC 8.2.3.a Recognize that vibrations set up wave-like disturbances that spread away from the source (sound, seismic, water waves)* | 5 | |
| *SC 8.2.3.b Identify that waves move at different speeds in different materials* | 4 | |
| *SC 8.2.3.c Recognize that light interacts with matter by transmission (including refraction), absorption, or scattering (including reflection)* | 10 | |
| *SC 8.2.3.d Recognize that to see an object, light from the surface of the object must enter the eye; the color seen depends on the properties of the surface and the color of the available light sources* | 5 | |
| *SC 8.2.3.e Recognize that heat moves from warmer objects to cooler objects until both reach the same temperature* | 5 | |
| *SC 8.2.3.f Describe transfer of energy from electrical and magnetic sources to different energy forms (heat, light, sound, chemical)* | 6 | |
| *SC 8.2.3.g Recognize all energy is neither created nor destroyed* | 7 | |
| **LIFE SCIENCE** | **Number of items in Item Bank** | |
| *SC 8.3.1.a Recognize the levels of organization in living organisms (cells, tissues, organs, organ systems, organisms)* | 7 | |
| *SC 8.3.1.b Recognize that all organisms are composed of one or many cells; that these cells must grow, divide, and use energy; and that all cells function similarly* | 7 | |
| *SC 8.3.1.c Recognize specialized cells perform specialized functions in multicellular organisms* | 6 | |
| *SC 8.3.1.d Identify the organs and functions of the major systems of the human body and describe ways that these systems interact with each other* | 12 | |

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| *SC 8.3.1.e Describe how plants and animals respond to environmental stimuli* | 7 | |
| *SC 8.3.2.a Recognize that hereditary information is contained in genes within the chromosomes of each cell* | 7 | |
| *SC 8.3.2.b Compare and contrast sexual and asexual reproduction* | 4 | |
| *SC 8.3.3.a Diagram and explain the flow of energy through a simple food web* | 6 | |
| *SC 8.3.3.b Compare the roles of producers, consumers, and decomposers in an ecosystem* | 13 | |
| *SC 8.3.3.c Recognize that producers transform sunlight into chemical energy through photosynthesis* | 9 | |
| *SC 8.3.3.d Determine the biotic and abiotic factors that impact the number of organisms an ecosystem can support* | 5 | |
| *SC 8.3.3.e Recognize a population is all the individuals of a species at a given place and time* | 7 | |
| *SC 8.3.3.f Identify symbiotic relationships among organisms* | 10 | |
| *SC 8.3.3.g Identify positive and negative effects of natural and human activity on an ecosystem* | 23 | |
| *SC 8.3.4.a Describe how an inherited characteristic enables an organism to improve its survival rate* | 8 | |
| *SC 8.3.4.b Recognize the extinction of a species is caused by the inability to adapt to an environmental change* | 3 | |
| *SC 8.3.4.c Use anatomical features of an organism to infer similarities among other organisms* | 12 | |
| **EARTH AND SPACE SCIENCE** | **Number of items in Item Bank** | |
| *SC 8.4.1.a Describe the components of the solar system (the Sun, planets, moons, asteroids, comets)* | 9 | |
| *SC 8.4.1.b Describe the relationship between motion of objects in the solar system and the phenomena of day, year, eclipses, phases of the Moon and seasons* | 11 | |
| *SC 8.4.1.c Describe the effects of gravity on Earth (tides) and the effect of gravity on objects in the solar system* | 7 | |
| *SC 8.4.2.a Describe the layers of Earth (core, mantle, crust, atmosphere)* | 7 | |
| *SC 8.4.2.b Describe the physical composition of soil* | 12 | |

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| *SC 8.4.2.c Describe the mixture of gasses in Earth's atmosphere and how the atmosphere's properties change at different elevations* | 9 | |
| *SC 8.4.2.d Describe evidence of Earth's magnetic field* | 2 | |
| *SC 8.4.2.e Compare and contrast constructive and destructive forces (deposition, erosion, weathering, plate motion causing uplift, volcanoes, earthquakes) that impact Earth's surface* | 11 | |
| *SC 8.4.2.f Describe the rock cycle* | 10 | |
| *SC 8.4.2.g Describe the water cycle (evaporation, condensation, precipitation)* | 9 | |
| *SC 8.4.2.h Classify Earth materials as renewable or nonrenewable* | 9 | |
| *SC 8.4.3.a Describe how energy from the Sun influences the atmosphere and provides energy for plant growth* | 4 | |
| *SC 8.4.3.b Identify factors that influence daily and seasonal changes on Earth (tilt of the Earth, humidity, air* | 9 | |
| *SC 8.4.3.c Describe atmospheric movements that influence weather and climate (air masses, jet stream)* | 5 | |
| *SC 8.4.4.a Recognize that Earth processes we see today are similar to those that occurred in the past (uniformity of processes)* | 4 | |
| *SC 8.4.4.b Describe how environmental conditions have changed through use of the fossil record* | 8 | |